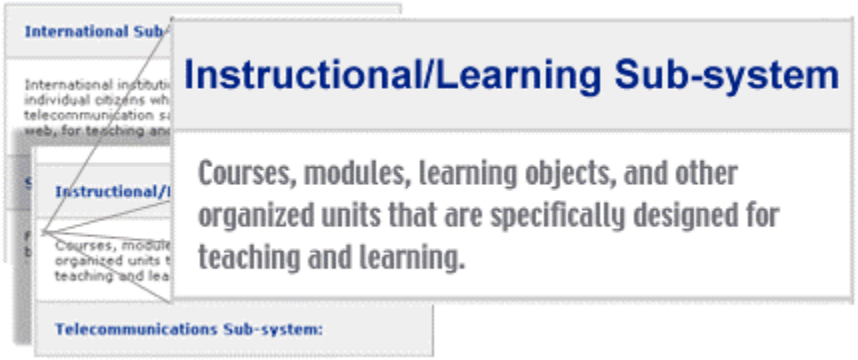
Understanding Distance Education Systems Methdology: Transactional Distance

In order to fully appreciate the importance systems methodology plays in existing distance education systems and designing new ones, we will analyze the Instructional/Learning Sub-system in the hierarchy we introduced in The article *Distance Education Systems* in detail, and then continue to analyze other sub-systems as well.

Choosing the Instructional/learning sub-system first is important, because it constitutes the core of a distance education system. If we understand how systems methodology applies to this core sub-system, analyzing other sub-systems will follow with ease.

Figure 2- Highlight of Instructional/Learning Sub-system.



Instructional/Learning Sub-system

Courses, modules, learning objects, and other organized units of instruction, as indicated in Figure 2, are usually created by subject matter experts (SME), instructional designers, or instructors. These professionals, as well as learners who use such materials are the primary actors in this sub-system. To make matters even simpler, for time being, we will concern ourselves only with teachers and learners at this point, before including others in this analysis.

Teachers, students and their relationship is essential to understanding any educational system, including distance education. In distance education the teacher and learner are said to be geographically separated (Keegan 1980, 1986, 1990a, 1990b). This separation has been put forward as the most distinguishing characteristic of distance education in comparison to other forms, such as what is commonly referred to as "face-to-face" education. Although geographic separation is a necessary concept for understanding distance education, it is not sufficient. Moore (1983) introduced the concept of "transactional distance" which defined the *relationship* of instructor and learner in more precise terms. He stated "There is now a distance between learner and teacher which is not merely geographic, but educational and psychological as well. It is a distance in the

relationship of the two partners in the educational enterprise. It is a "**transactional distance**." (p. 155).

Analyzing Transactional Distance

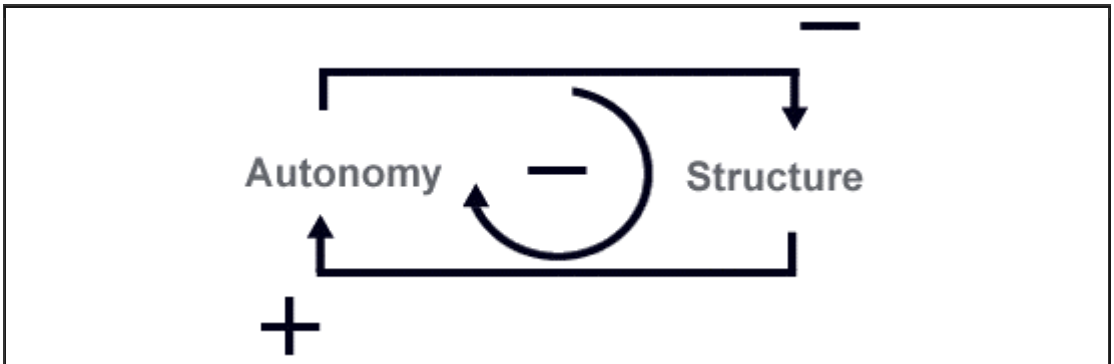
Geographic distance is usually measured in miles and kilometers. But how do we measure transactional distance? How do we approach this abstract concept? As Moore (1983) has stated, and Saba, and Shearer (1994) have demonstrated, transactional distance is a measure of the relationship between the teacher and learner in terms of requisite **structure** for the instructor or the instructional institution, and required **autonomy** by the learner in any instructional situation. This relationship can be depicted as a **system dynamics causal loop diagram** in Figure 3.

System Dynamics is a field for understanding how things change through time. System dynamics deals with how internal *feedback*-loops within the structure of a system create behavior. Computer simulation models are used to achieve a better understanding of system behavior over time. With a better comprehension of systems, one can redesign structure of policies and improve the behavior. The field of system dynamics was created by Jay Forrester beginning in 1956.

Causal loop diagram: Diagram representing a closed loop of cause-effect linkages (causal links) which is intended to capture how the variables interrelate.

Source: Road Maps: A Guide to Learning System Dynamics. MIT System Dynamics Group,

Figure 3- Causal Loop Diagram of Transactional Distance



This is a negative feedback loop, in which the direction of effect between autonomy and structure is negative. In other words, the more autonomy a student requires, the relationship between the learner and instructor is less structure. More structure provided by the instructor, or the instructional institution, on the other hand, results in less autonomy.

This is a **dynamic** relationship between the instructor, and student during the course of instruction, which means such relationship changes in time. As the student becomes more knowledgeable, and self-reliant, his/her need for autonomy might increase. Others, might have a high need for structure and continue to require a more

structured approach to instruction, even when they have become more competent in what they are learning. Autonomy, and structure, in turn are dependent on other sub-system variables, which we will discuss in the next section.

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